# Brief

Having written your engine design document, use it as the basis for developing an implementation of your engine. All the code you write must be in C++ (unless for scripting language purposes), you are encouraged to follow the C++11 standards and it may be worth looking at something like the google C++ style guide for a reference as to how to present your code.

You must write a set of documentation for your engine, it should provide a clear API reference (you may want to look at the Unreal / Unity documentation for inspiration) which, ideally, should be generated from the code itself.

You should develop a small proof of concept game that makes use of your engine to demonstrate it is fit for purpose. This proof of concept should be included in your submission with any required assets.

## Minimum engine requirements

* Renderer
* Input manager
* Resource manager
* Scene management

## Demo game

Your demo game must contain the following.

* A movable player
* A reasonable goal
* At least one level
* At least one enemy AI (this does not need to be complex)
* At least on pick up item

## Extra modules

For extra points and to achieve the higher marks you may choose to implement modules from the following list

|  |  |
| --- | --- |
| Extra Module | Points value |
| Physics system | 5 |
| rendering techniques | 20 |
| Scripting system | 10 |
| Debugging and logging output | 5 |
| Profiling output | 5 |
| Audio system (playing a sound file will not do) | 10 |
| Communications system (messaging, event, etc) | 10 |

## Submission

**Due date**: Noon, 17/03/2023

Marking Criteria

|  |  |  |
| --- | --- | --- |
| **Student Name:** | | |
| **3rd** | **1st Marker** | **2nd Marker** |
| Code is functional but contains major game/engine breaking bugs | /2 |  |
| Code is poorly formatted. | /2 |  |
| Code is poorly documented | /2 |  |
| Only basic functionality is implemented, not enough to produce demo game. | /2 |  |
| Code is not easily extendable | /2 |  |
| **2:2** |  |  |
| Code is functional but contains minor game/engine bugs | /2 |  |
| Code formatting has been attempted thought may not be consistent or effective | /2 |  |
| Code is partially documented and or documented poorly | /2 |  |
| Code is extendable | /2 |  |
| Basic engine functionality is implemented and is enough to produce working demo game. | /2 |  |
| **2:1** |  |  |
| Code functions correctly | /3 |  |
| Code is formatted consistently across all code files | /3 |  |
| Code is completely and well documented and leave little ambiguity. | /2 |  |
| Engine is implemented with some extra functionality  (minimum points value of 15) | /2 |  |
| **1st *As for 2:1, but including*** |  |  |
| Engine/demo game implementation demonstrates a polished professional final product. | /2 |  |
| Code is exceedingly well documented and demonstrated to professional standard | /2 |  |
| Implementation of majority of extra functionality  (minimum points value of 25) | /2 |  |
| Implementation of **ALL** extra modules  (Achievement unlocked: Going above and beyond!)) | /2 |  |
| **Grade** |  |  |
| **Agreed Grade** |  |  |
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